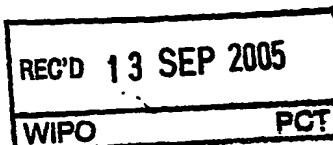


**PATENT COOPERATION TREATY  
PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference 12449600/DH/gjm	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. <b>PCT/AU2004/000639</b>	International filing date (day/month/year) 14 May 2004	Priority date (day/month/year) 14 May 2003
International Patent Classification (IPC) or national classification and IPC  Int. Cl. <sup>7</sup> G08B 17/10		
Applicant VISION FIRE & SECURITY PTY LTD et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☒ (sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:
    - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:
 

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input checked="" type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand 6 January 2005	Date of completion of the report 31 August 2005
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  <b>J. LAW</b> Telephone No. (02) 6283 2179

BEST AVAILABLE COPY

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/AU2004/000639

## Box No. I Basis of the report

With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1 (b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

☐ the international application as originally filed/furnished

☒ the description:

pages 1-46 as originally filed/furnished  
pages\* received by this Authority on with the letter of  
pages\* received by this Authority on with the letter of

☒ the claims:

pages 47-53 as originally filed/furnished  
pages\* as amended (together with any statement) under Article 19  
pages\* 54-55 received by this Authority on 11 March 2005 with the letter of 11 March 2005  
pages\* received by this Authority on with the letter of

☒ the drawings:

pages 1-31 as originally filed/furnished  
pages\* received by this Authority on with the letter of  
pages\* received by this Authority on with the letter of

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to the sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to the sequence listing (*specify*):

Note: Abstract page 56 filed 11 March 2005

\* If item 4 applies, some or all of those sheets may be marked "superseded."

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/AU2004/000639

## Box No. IV Lack of unity of invention

- ☐ In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
  - ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☐ neither restricted nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
- ☐ complied with.
  - ☒ not complied with for the following reasons:  
The two inventions are:  
    1. Claims 1-28, 31-33 & 40-45 are directed toward a method of determining time of flight of a signal. It is considered that "determining time of flight" represents a first special technical feature.
    2. Claims 29-30 and 34-39 pertain to sensing rate of flow in the pipes of an aspirated smoke detector. It is considered that "sensing rate of flow in the pipes of an aspirated smoke detector" represents a second special technical feature.
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
  - ☐ the parts relating to claims Nos.

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.

**PCT/AU2004/000639****Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims 1-28, 30, 31, 33-42, 44-46	<b>YES</b>
	Claims 29, 32, 43	<b>NO</b>
Inventive step (IS)	Claims 1-28, 30, 31, 33-42, 44-46	<b>YES</b>
	Claims 29, 32, 43	<b>NO</b>
Industrial applicability (IA)	Claims 1-46	<b>YES</b>
	Claims	<b>NO</b>

**2. Citations and explanations (Rule 70.7)****Novelty (N) and Inventive Step (IS) Claims 29, 32, 43**

EP 1006500 A2 (PITTMAY CORPORATION) 7 June 2000

The above citation shows all the features of the claims. See paragraph 19 for detection of a clogged filter by sensing a loss of flow of ambient air through the sensing chamber. It is generally understood that loss of flow is measured by comparing a base flow with a subsequent flow.

- 54 -

39. The smoke detector of any one of claims 34, 35 or 36 having a branch in the inlet allowing air to bypass the particle detector.

40. The smoke detector of any one of claims 34 to 39 wherein the flow sensor comprises the apparatus of any one of claims 13, 20, 24, 25, 26 or 28.

5 41. A computer program product comprising:

a computer usable medium having computer readable program code and computer readable system code embodied on said medium for determining the time of flight of a signal transmitted between a transmitter and a receiver within a data processing system, said computer program product comprising:

10 computer readable code within said computer usable medium for performing the method steps of any one of claims 1 to 12, 14 to 19 and 21 to 23.

42. A computer program product comprising:

15 a computer usable medium having computer readable program code and computer readable system code embodied on said medium for monitoring flow through a particle detector of an aspirated smoke detector system within a data processing system, said computer program product comprising:

computer readable code within said computer usable medium for performing the method steps of claim 27.

43. A computer program product comprising:

20 a computer usable medium having computer readable program code and computer readable system code embodied on said medium for detecting one or more blocked sampling holes in a pipe of an aspirated smoke detector system within a data processing system, said computer program product comprising:

25 computer readable code within said computer usable medium for performing the method steps of any one of claims 29 to 33.

44. A method substantially as herein described with reference to at least one of the accompanying drawings.

45. Apparatus substantially as herein described with reference to at least one of the accompanying drawings.

30 46. A method of determining the time of flight of a signal transmitted between a transmitter and a receiver, said method comprising the steps of:

- 55 -

transmitting a first signal comprising at least one characteristic waveform feature;

transmitting a second signal comprising at least one characteristic waveform feature and a waveform modification introduced at a predetermined point in time of the duration of the second signal;

5 receiving said first and second transmitted signals;

determining a point of diversion between corresponding characteristic waveform features of the first and second received signals comprising super positioning said first and second received signals such that said point of diversion corresponds to an arrival time of the introduced waveform feature modification at the receiver, wherein the step of determining a point of diversion further

10 comprises:

calculating the difference between a value of the first received signal and a corresponding value of the second received signal at each point of occurrence of a characteristic waveform feature within the first received signal;

15 designating the point of diversion as the first point of occurrence at which the calculated difference is greater than the value of the second received signal and wherein the method further comprises measuring a time relationship between a nominated characteristic waveform feature and the point of diversion and;

20 calculating the difference between the time of reception, based on the measured time relationship, and the time of transmission of the nominated characteristic waveform feature and wherein the nominated characteristic waveform feature is a feature of a first unmodified signal and the method further comprises the steps of:

transmitting a plurality of subsequent first unmodified signals and;

25 determining the time of flight of the plurality of subsequent first unmodified signals by calculating the difference between the time of reception, based on the measured time relationship, and the time of transmission of the nominated characteristic waveform feature of each respective one of the plurality of subsequent first unmodified signals.

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☒ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**